

# **Recommendations to Address Flood Warning Deficiencies in the Delaware River Basin**

**Prepared by the Delaware River Basin Commission  
With Technical Guidance from the DRBC Flood Advisory Committee**

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# **Recommendations to Address Flood Warning Deficiencies in the Delaware River Basin**

## **Introduction**

This report presents recommendations for improving flood warning in the Delaware River Basin. Significant flood damage occurs annually in the basin. In June of 2001, flooding caused by Tropical Storm Allison resulted in seven deaths and caused \$35 million in damage. In 1999, Hurricane Floyd caused \$145 million in damage and federal disaster declarations were issued for 10 basin counties. Flooding in the winter of 1996 caused \$120 million in damage. With relatively few exceptions, the basin's floodplains continue to contain residential, commercial, or industrial property, as well as transportation networks that are subject to flood damage. Despite existing flood control structures, floodplain regulations, and increased flood mitigation activity in the basin, the potential for life and property losses due to flooding continues. The risk of damage is increased by general apathy. Although Floyd and the 1996 flooding produced major damage, the Delaware Basin has not been faced with severe region-wide flooding since the record flooding of 1955. Damage from a recurrence of that flood has been estimated at \$2.8 billion by the National Weather Service.

The overall goal of eliminating flood losses drives numerous structural, non-structural, and regulatory programs. Yet flood warning remains the necessary day-to-day means of identifying and reacting to immediate flood threats. Flood warning will continue to be necessary as long as floodplains are occupied. The existing flood warning and emergency system in the basin has resulted from a partnership of federal, state, local and private organizations. Adequate flood warning is especially vital to those professionals and volunteers who are responsible for flood evacuation efforts, such as emergency and rescue personnel.

Effective flood warning can reduce economic flood losses by up to 10 percent and, in particular, reduces the loss of life due to flooding. The benefit to cost ratio of flood warning improvements in the neighboring Susquehanna River Basin has been estimated at 12.5 to 1 by the National Weather Service. In addition, the precipitation and stream gages used for flood warning produce many additional benefits in water resources management and risk assessment.

The Delaware River Basin Commission Flood Advisory Committee (FAC), comprised of eighteen different organizations responsible for flood loss reduction, has identified two categories of flood warning deficiencies in the basin. The first category focuses on immediate equipment deficiencies. The second category includes general needs related to monitoring, modernized technology, and improved public outreach. To address the deficiencies, the Delaware River Basin Commission staff, with the guidance of technical experts serving on the FAC, developed the recommendations in this report. A major goal of the recommendations is to build toward implementation of the National Weather Service's Advanced Hydrologic Prediction Services (AHPS) in the Delaware River Basin.

These recommendations focus on flood warning improvements from a basinwide perspective. Preliminary estimated costs are \$2.1 million one-time and \$0.3 million annually to address immediate equipment deficiencies, and to begin the modernization effort. A map showing the general locations of the proposed improvements is shown in Attachment B. Copies of this document may be obtained from the Delaware River Basin Commission by calling (609) 883-9500, extension 232.

# The Delaware River Basin

